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Optical-collisional transitions in the "dressed" atom model

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Abstract

In this paper we present a theoretical description of collisional transitions between energy levels of the composite system "atom + radiation field." For simplicity we consider a two-level atom interacting with a classical field, neglecting spontaneous transitions. We obtain an exact solution to the Schrödinger equation with arbitrary time dependence in the Hamiltonian in the rotating wave approximation. We find the levels for which the polarization of the system will have a component due to purely collisional effects. © 1994 Plenum Publishing Corporation.

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